UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 84508

CSAH NO. 30

OVER THE

RED RIVER OF THE NORTH

DISTRICT 4 - WILKIN COUNTY

PREPARED FOR THE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 3512 (CEI 55)

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure unit inspected at Bridge No. 84508, Pier 1, was found to be in good condition with no significant structural defects observed. Pier 2, was previously inspected, but not in the water at the time of inspection. Pier 2 was also inspected since it is often in the water and no defects were found. The channel bottom appeared stable with no significant scour and with no appreciable changes since the previous inspection.

INSPECTION FINDINGS:

(A) There was a 2 foot diameter log located along the upstream nose of Pier 1.

(B) Erosion was observed at the embankment along the West Abutment which was beginning to undermine the pile cap.

RECOMMENDATIONS:

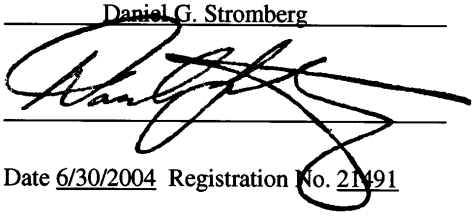
(A) Monitor the timber debris, and if found to be increasing in the future, removal operations may become warranted.

(B) Evaluate the bank erosion and assess the need to provide riprap along the West Abutment to prevent further erosion.

(C) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

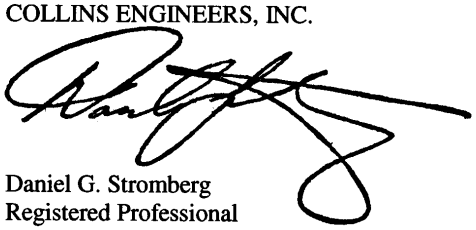
Daniel G. Stromberg



Date 6/30/2004 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.



Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 84508

Feature Crossed: The Red River of the North

Feature Carried: CSAH No. 30

Location: District 4 - Wilkin County

Bridge Description: The superstructure consists of three spans of multiple steel beams. The superstructure is supported by two reinforced concrete abutments and two reinforced concrete piers. The footings of both the abutments and piers are supported by steel H-piles. The piers are numbered 1 and 2 starting from the west.

2. INSPECTION DATA

Professional Engineer/Team Leader: Shirley M. Walker, P.E.

Dive Team: Michelle D. Koerbel, Clayton G. Brookins

Date: October 29, 2002

Weather Conditions: Rain and Snow, "35E F

Underwater Visibility: "1 Foot

Waterway Velocity: Negligible/None

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1 and 2

General Shape: The piers each consist of a rectangular shaft with rounded ends and a hammerhead cap founded on a rectangular footing supported by piles.

Maximum Water Depth at Substructure Inspected: Approximately 6.3 Feet.

4. WATERLINE DATUM

Water Level Reference: The top of the pier cap on the south end of Pier 1.

Water Surface: The waterline was approximately 21.9 feet below reference.
Waterline Elevation = 896.7.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 8

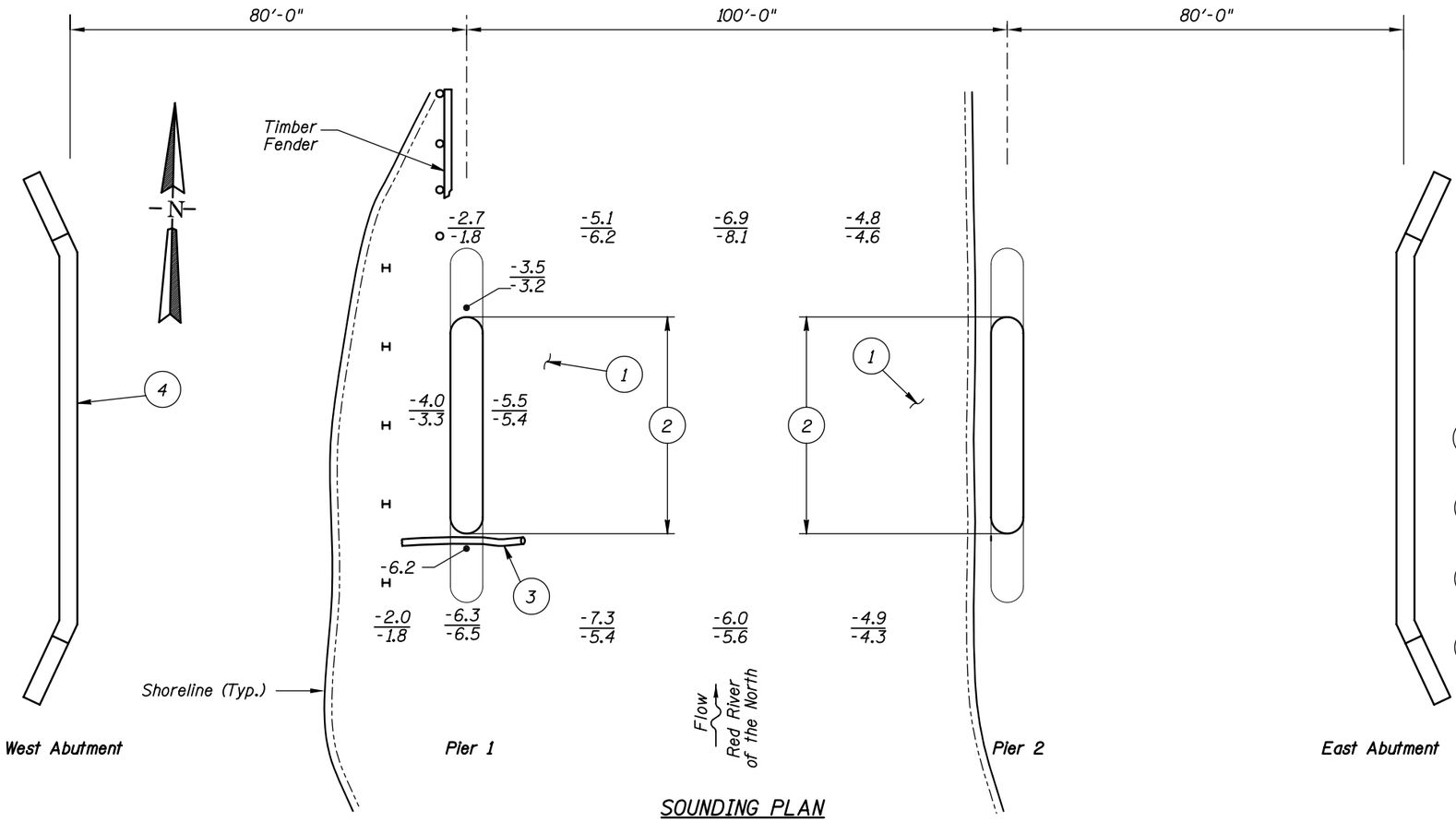
Item 61: Channel and Channel Protection: Code 6

Item 92B: Underwater Inspection: Code B/11/02

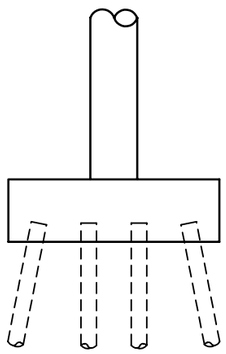
Item 113: Scour Critical Bridges: Code R/95

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

_____ Yes ___X__No



SOUNDING PLAN



TYPICAL END VIEW OF PIERS

GENERAL NOTES:

1. Pier 1 was inspected underwater. Since Pier 2 (dry for this inspection) can also be submerged at times, it was also inspected.
2. At the time of inspection on October 29, 2002, the waterline was located approximately 21.9 feet below the top of the pier cap at the upstream end of Pier 1. This corresponds with a waterline elevation of 896.7 based on the previous report dated September 2, 1997.
3. Soundings indicate the water depth at the time of inspection and are measured in feet.
4. Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units.

INSPECTION NOTES

(1) Channel bottom consisted of gravelly silt with maximum probe rod penetration 1 foot.

(2) Overall the concrete surfaces of both piers were in good, smooth, and sound condition.

(3) A 2 foot diameter log was observed along the upstream nose of Pier 1.

(4) Erosion was observed at the West Abutment which was beginning to undermine the pile cap.

Legend

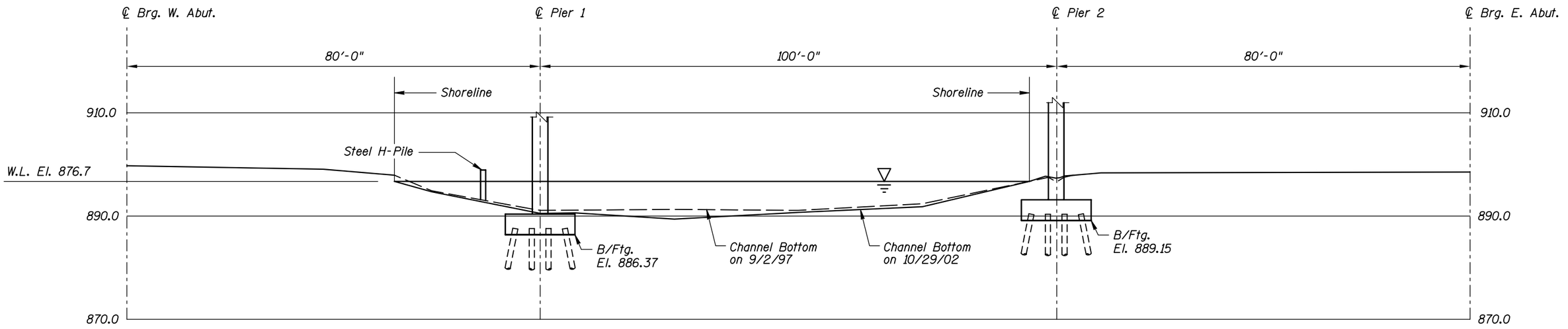
-2.0	Sounding Depth from Waterline (10/29/02)
-5.2	Sounding Depth from Waterline (9/2/97)
H	Exposed Steel H-Pile Cut Off Above Waterline

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

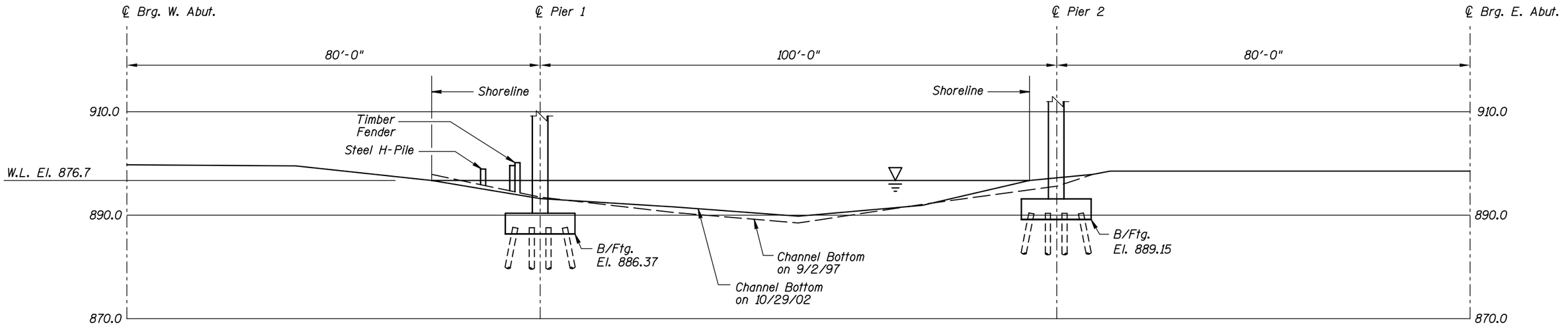
STRUCTURE NO. 84508
OVER THE RED RIVER OF THE NORTH
DISTRICT 4, WILKIN COUNTY

INSPECTION AND SOUNDING PLAN

Drawn By: PRH	COLLINS ENGINEERS, INC.	Date: OCT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: NTS
Code: 35120055		Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:

Refer to Figure 1 for General Notes.

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

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OVER THE RED RIVER OF THE NORTH
DISTRICT 4, WILKIN COUNTY

UPSTREAM AND DOWNSTREAM FASCIA PROFILES

Drawn By: PRH	**COLLINS ENGINEERS, INC.**	Date: OCT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: 1"=20'
Code: 35120055		Figure No.: 2

Photograph 1. Overall View of the Structure, Looking North.

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Photograph 2. View of Pier 1, Looking East. Note HP-Piles Protruding from the Waterline.

Photograph 3. View of Pier 2, Looking East. Note Pier was not in the Water at the Time of Inspection.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: October 29, 2002
ON-SITE TEAM LEADER: Shirley M. Walker, P.E.
BRIDGE NO: 84508 WEATHER: Rain and Snow, "35E F
WATERWAY CROSSED: The Red River of the North
DIVING OPERATION: X SCUBA SURFACE SUPPLIED AIR
OTHER
PERSONNEL: Michelle D. Koerbel, Clayton G. Brookins
EQUIPMENT: Scuba, U/W Light, Scraper, Lead Line, Sounding Pole, Probe Rod, Camera
TIME IN WATER: 7:40 A.M.
TIME OUT OF WATER: 8:05 A.M.
WATERWAY DATA: VELOCITY Negligible/None
VISIBILITY "1 foot
DEPTH 6.3 feet maximum at Pier 1
ELEMENTS INSPECTED: Piers 1 and 2
REMARKS: The concrete of the piers was smooth, sound and in good condition. There was a 2 foot diameter log along the upstream nose of Pier 1. Pier 2 was not in the water at the time of inspection. Erosion was observed at the West Abutment which was beginning to undermine the pile cap.

FURTHER ACTION NEEDED: ___X___ YES _____ NO

Monitor the timber debris, and if found to be increasing in the future, removal operations may become warranted.

Evaluate the bank erosion and assess the need to provide riprap along the West Abutment to prevent further erosion.

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 84508
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Shirley M. Walker, P.E.
WATERWAY CROSSED The Red River of the North

INSPECTION DATE October 29, 2002

NOTE: USE ALL APPLICABLE CONDITION DEFINITIONS AS DEFINED IN THE MINNESOTA RECORDING AND CODING GUIDE INCLUDING GENERAL, SUBSTRUCTURE, CHANNEL AND PROTECTION, AND CULVERTS AND WALL DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

			SUBSTRUCTURE						CHANNEL					GENERAL					
UNIT REFERENCE NO.		MAXIMUM DEPTH OF WATER	PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
	UNIT DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Pier 1	6.3	N	8	N	9	N	8	6	6	6	6	6	8	N	N	8	N	N

*UNDERWATER PORTION ONLY

REMARKS: The concrete of the piers was smooth, sound and in good condition. There was a 2 foot diameter log along the upstream nose of Pier 1. Pier 2 was not in the water at the time of inspection. Erosion was observed at the West Abutment which was beginning to undermine the pile cap.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.